Impact of the rouble's depreciation on Russian overnight stays in Finnish regions and cities

Falk, Martin; Vieru, Markku Jaakko

Published in:
Tourism Economics

DOI:
10.5367/te.2016.0544

Published: 01.01.2017

Document Version
Publisher's PDF, also known as Version of record

Citation for pulished version (APA):
Falk, M., & Vieru, M. J. (2017). Impact of the rouble's depreciation on Russian overnight stays in Finnish regions and cities. *Tourism Economics*, *23*(4), 854-866. https://doi.org/10.5367/te.2016.0544

TOURISM ECONOMICS
The Business and Finance of Tourism and Recreation

Research Note

Tourism Economics
2017, Vol. 23(4) 854–866

DOI: 10.5367/te.2016.0544
journals.sagepub.com/home/teu
SAGE

Impact of rouble's depreciation on Russian overnight stays in Finnish regions and cities

Martin Falk
Austrian Institute of Economic Research (WIFO), Austria

Markku Vieru
University of Lapland, Finland

Abstract
This article investigates how the depreciation of the Russian rouble against the euro has affected Russian tourism demand in Finnish regions and cities. Using dynamic panel data models, the authors find that the elasticity of Russian tourists' overnight hotel stays with respect to exchange rates is significantly larger than 1 (approximately 1.6) in absolute terms, indicating that Russian tourists are highly sensitive to changes in exchange rates. There is some evidence that the sensitivity of Russian tourism demand increased following the introduction of economic sanctions in August 2014. The sensitivity of tourism demand to exchange rate changes differs highly across regions and cities, with higher elasticities in border regions and cities not too far from the Russian border. These regions and areas attract a significant number of short-stay Russian visitors who are often motivated by cross-border shopping and other activities.

Keywords
cities, cross-border tourism, exchange rate changes, panel data model, tourism demand, regions

Introduction

The Russian rouble (RUB) lost significant value against the euro (EUR) between September 2014 and October 2015 (EUR/RUB 45–73). Finland is an interesting country on which to base a study on how exchange rate shocks impact tourism demand. As a neighbouring nation, it traditionally attracts a high share of tourists from Russia: In 2013, the Russian share of total foreign overnight

Corresponding author:
Markku Vieru, Faculty of Social Sciences, University of Lapland, Multidimensional Tourism Institute (MTI), Yliopistonkatu 8, FI-96300 Rovaniemi, Finland.
Email: markku.vieru@ulapland.fi

stays in Finland reached 26% much higher than in any European country.[1] The border regions in Finland are strongly dependent on Russian tourists, with the Russian share in foreign overnight hotel stays ranging as high as 90% (in South Karelia). Between September 2014 and October 2015, however, the number of Russian tourists in Finland declined by around 40%.

The aim of this study is to examine the impact of nominal and real exchange rate changes on Russian tourism demand in Finland. It is based on monthly panel data on 16 provinces and 34 cities. We estimate dynamic panel data models while controlling for seasonal factors and yearly time effects. Studying the heterogeneity of the exchange rate effects is crucial, as Finnish regions are highly heterogeneous in terms of their characteristics and amenities (nature tourism, snow-based winter tourism, lakes, national parks and cities; see Toivonen, 2002).

This article contributes to the literature on the sensitivity of international tourism flows to exchange rate fluctuations. Despite the large number of studies, there is still no consensus regarding exchange rate elasticity based on the country of origin (see, e.g. Cortés-Jiménez and Blake, 2011; Chi, 2015; Meurer, 2010 for recent studies). Moreover, few studies have investigated the determinants of Russian tourism outflows. Tang et al. (2014) find that Russian tourism to China is highly sensitive to exchange rate volatility. Furmanov et al. (2012) reveal that neither origin country income nor relative prices are significantly related to outbound Russian tourism in the European Union (EU) countries.

During the time of the Soviet Union, Russian tourism in Finland was very unusual and subject to political controls (Ollus and Simola, 2006). After the country's collapse in 1991, the restrictions previously imposed by the Soviet legislature on personal travel were relaxed. Russians' travel and vacation interests in Finland increased in 2000, when the Finnish property market was finally opened to foreigners. Since then, there have been a noticeable number of Russian second-home (or *dacha*) purchases, especially in the Finnish Lake District in southeast Finland (Pitkänen, 2011). Lipkina's (2013) results reveal a highly positive image of Finland among the main motives for Russian second-home ownership in the country, along with its pristine nature, similar climatic conditions, lake landscape (with personal access to lakeshores) and price rates. In the Karelia region, Russians are also attracted by the local national parks for hiking and recreation, the Saimaa Canal, the region's many Orthodox churches and chapels (or *tsasouna*) and other factors (Jakosuo, 2011).

A number of large Russian cities are located near the Finnish border. For example, the St. Petersburg region alone comprises some 5 million inhabitants and is now connected to Helsinki by high-speed trains (called Allegro). Murmansk – another major city with a population of around 300,000 – is located in the extreme northwest of Russia on Kola Bay, not that far from Finnish Lapland. The distances from St. Petersburg and Moscow to the Finnish border are about 200 and 900 km, respectively, making Finland the nearest EU neighbour and easily accessible for millions of Russians from the European part of the country, even by car (Furmanov et al., 2012).

The structure of this study is as follows. The second section introduces the empirical model and the data. The third section presents the findings and the last section is on conclusion.

Empirical model and data

Russian tourism demand in Finland is specified as a function of the income of Russians and the rouble-to-euro exchange rate, monthly dummy variables and the yearly time trend (see Song and Li, 2008). Since income data are not available for Russia on a monthly basis, we use the retail trade volume of the Russian economy as a proxy. We employ a dynamic specification derived from the autoregressive distributive lag (ARDL) model. After some transformations, the dynamic tourism demand equation is obtained as follows:

$$\Delta \ln ONS_{it} = \alpha_{oi} - \phi_i \ln ONS_{i,t-1} + \alpha_{1,i} lnY_t - \alpha_{2,i} \ln ER_t - \alpha_{3,i} \ln ER_t \cdot D14Aug_t + \alpha_{4,i} T + \sum_{j=0}^{K} \beta_{1ij} \Delta lnY_{t-J} + \sum_{j=0}^{K} \beta_{2ij} \Delta \ln ER_{t-J} + \lambda_t + \alpha_i + v_{it}, \quad (1)$$

The dynamic tourism demand equation can also be written in the form of an error correction model:

$$\Delta \ln ONS_{it} = -\phi_i (\ln ONS_{i,t-1} - \theta_1 lnY_t + \theta_2 \ln ER_t + \theta_3 \ln ER_t \cdot D14Aug_t - \theta_4 T) + \sum_{j=0}^{K} \beta_{1ij} \Delta lnY_{t-J} + \sum_{j=0}^{K} \beta_{2ij} \Delta \ln ER_{t-J} + \lambda_t + \alpha_i + v_{it}, \quad (2)$$

where ϕ denotes the error correction coefficient, i stands for region (with $i = 1, \ldots, 16$ or $i = 1, \ldots, 37$ for the cities in question), t denotes the time (January 1999 to July 2015), Δ represents the first difference operator and j is the lag operator indicator. The natural logarithm is represented by ln. ONS denotes the number of nights Russian tourists spent in Finnish hotels (or alternatively, in all types of accommodation). α_i denotes the region (or city) effect, and ER is the rouble-to-euro (EUR/RUB) exchange rate. $D14Aug$ is a dummy variable that equals 1 for the period August 2014 onwards and 0 otherwise. λ_t denotes monthly dummy variables, and T is the yearly time trend in years. Y denotes the retail trade volume in Russia, while α_2 represents the elasticity of tourism demand with respect to the exchange rate. In order to test the impact of the change in the exchange rate after the introduction of the EU's economic sanctions against Russia, the exchange rate coefficient is allowed to vary from August 2014 onwards. Since the time period is considerably higher than the number of cross-sectional units (N, in regions or cities), the error correction version of the ARDL model is estimated using the pooled mean group (PMG) estimator (Pesaran et al., 1999). The error correction model can be estimated by means of maximum likelihood under the non-linear restrictions $\alpha_{k,i}/\phi_i = \theta_k$. The lag order of the ARDL is determined using the Akaike information criterion for lag selection. Since distinct regions and cities are expected to be affected differently by changes in exchange rates, we also allow the long-run exchange rate coefficient to vary across regions (or cities). To account for heterogeneity, we use the mean group estimator (Pesaran and Smith, 1995).

Data on overnight stays cross-classified by region and guest country of origin[2] and overnight stays by city[3] can be downloaded from the website of Statistics Finland. This estimation sample is based on 16 Finnish regions at the monthly level starting from the period January 1999 and ending at July 2015. It consists of about 4000 observations. Åland and Central Ostrobothnia have to be excluded because of large gaps in the corresponding data. The number of time periods in the estimation sample is about 180 on average. In addition, city-level data comprising some 6800 observations are used. Here, we selected the 37 cities (of the 48 total cities) for which we do not have gaps in the time series due to zero values. Consumer prices indices for Finland and Russia, rouble-to-euro exchange rates, and the relevant data on retail trade volumes were downloaded from Organization for Economic Cooperation and Development (OECD) STATS (http://stats.oecd.org/). Table 1 lists the descriptive statistics across regions (see Figure 1 for a map of Finland's regions) for Russian overnight stays at all types of accommodation establishments (panel A) and in hotels in particular (panel B). Table 2 presents descriptive statistics for total Russian overnight stays at the city

Table 1. Descriptive statistics (1999:1 to 2015:7) at the regional level.

	Overnight stays of Russian tourists			Share of Russian overnights in total foreign night stays	Overnight stays of Russian tourists		
	1999	2013	Change in percentage	2013	2013:8 to 2014:7	2014:8 to 2015:7	Change in percentage
Region			Panel A. Overnight stays in all accommodation establishments				
Total Finland	400,813	1,620,419	10.5	27.7	1,515,666	961,617	−36.6
Main Finland	399,883	1,614,820	10.5	28.8	1,510,537	956,402	−36.7
Uusimaa	168,561	439,011	7.1	18.8	402,733	252,436	−37.3
Varsinais-Suomi	8362	32,049	10.1	15.1	31,745	20,090	−36.7
Satakunta	1682	4254	6.9	7.2	4084	3453	−15.5
Kanta-Häme	4958	9420	4.7	22.3	8851	5182	−41.5
Pirkanmaa	16,619	34,819	5.4	15.3	30,815	21,781	−29.3
Päijät-Häme	24,693	44,787	4.3	50.4	47,216	28,860	−38.9
Kymenlaakso	11,888	72,050	13.7	54.7	65,521	39,062	−40.4
South Karelia	28,087	352,418	19.8	89.3	321,211	189,372	−41.0
Etelä-Savo	16,792	148,670	16.9	69.7	146,663	100,873	−31.2
Pohjois-Savo	16,981	56,495	9.0	45.3	53,096	35,712	−32.7
North Karelia	13,878	57,708	10.7	62.4	58,070	33,974	−41.5
Central Finland	28,501	53,759	4.6	34.4	49,413	30,957	−37.4
South Ostrobothnia	1273	3754	8.0	12.2	3400	2412	−29.1
Ostrobothnia	1837	3704	5.1	5.1	3536	2335	−34.0
North Ostrobothnia	7230	84,150	19.2	29.3	89,339	64,648	−27.6
Central Ostrobothnia	274	1990	15.2	12.0	1855	581	−68.7
Kainuu	23,874	65,411	7.5	61.3	60,346	43,694	−27.6
Lapland	24,393	150,371	13.9	14.6	132,291	80,667	−39.0
Åland	930	5599	13.7	2.3	5129	5215	1.7
			Panel B. Overnight stays in hotels				
Total Finland	349,941	1,257,287	9.6	26.0	1,145,923	703,659	−38.6
Main Finland	349,517	1,254,976	9.6	26.5	1,143,658	701,207	−38.7
Uusimaa	153,284	418,872	7.4	18.8	376,827	236,932	−37.1
Varsinais-Suomi	6259	23,894	10.0	14.3	22,231	14,487	−34.8

(continued)

Table 1. (continued)

	Overnight stays of Russian tourists			Share of Russian overnights in total foreign night stays	Overnight stays of Russian tourists		
	1999	2013	Change in percentage	2013	2013:8 to 2014:7	2014:8 to 2015:7	Change in percentage
Satakunta	1345	2872	5.6	5.9	2189	1857	−15.2
Kanta-Häme	4240	7835	4.5	20.3	7136	4080	−42.8
Pirkanmaa	14,206	24,145	3.9	14.1	21,482	15,616	−27.3
Päijät-Häme	23,304	33,333	2.6	49.2	34,556	21,024	−39.2
Kymenlaakso	10,659	50,203	11.7	51.7	44,188	22,884	−48.2
South Karelia	25,895	290,873	18.9	90.1	263,023	153,059	−41.8
Etelä-Savo	10,255	61,562	13.7	71.3	55,872	36,731	−34.3
Pohjois-Savo	12,091	37,219	8.4	42.7	34,001	21,852	−35.7
North Karelia	10,707	40,274	9.9	61.7	39,098	20,491	−47.6
Central Finland	25,968	47,003	4.3	33.1	43,366	26,671	−38.5
South Ostrobothnia	1003	2021	5.1	10.2	1808	1372	−24.1
Ostrobothnia	1690	3014	4.2	4.8	2628	1904	−27.5
North Ostrobothnia	6619	46,325	14.9	23.3	50,028	34,500	−31.0
Central Ostrobothnia	137	313	6.1	3.4	173	n.a.	n.a.
Kainuu	21,403	47,527	5.9	58.2	43,731	28,573	−34.7
Lapland	20,452	117,691	13.3	13.9	100,906	58,766	−41.8
Åland	424	2311	12.9	2.2	2265	2452	8.3

Note: The average annual growth rate of overnight stays is calculated as the annual geometric growth rate.
Source: Statistics Finland. Own calculations.

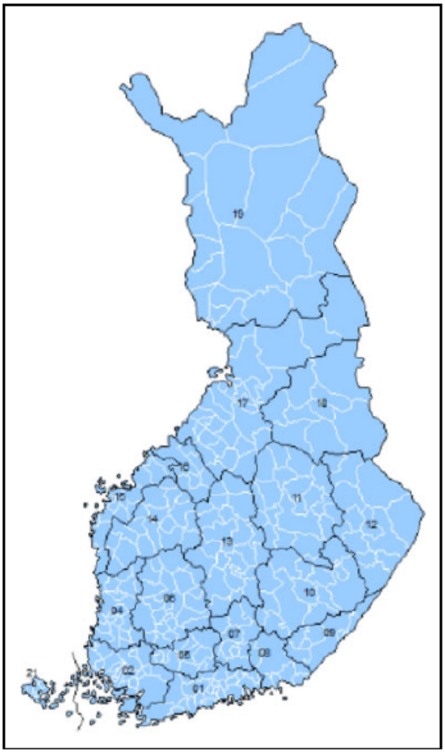

Figure 1. Regions in Finland year 2015. 01 = Uusimaa, 02 = Varsinais-Suomi, 04 = Satakunta, 05 = Kanta-Häme, 06 = Pirkanmaa, 07 = Päijät-Häme, 08 = Kymenlaakso, 09 = South Karelia, 10 = Etelä-Savo, 11 = Pohjois-Savo, 12 = North Karelia, 13 = Central Finland, 14 = South Ostrobothnia, 15 = Ostrobothnia, 16 = Central Ostrobothnia, 17 = North Ostrobothnia, 18 = Kainuu, 19 = Lapland, 21 = Åland.
Source: Tilastokeskus (2015).

level. Figure 2 provides information on the evolution of Russian overnight stays for the total sample period. The sharpest peaks in Figure 2 are in December and January, which is when Russians celebrate Orthodox Christmas. Smaller peaks are evident during the summer season.

Russian overnight stays increased strongly over the sample period until 2013. Between 2014 and 2015 (measured for the months August to July), the number of Russian overnight stays in hotels decreased by 39% compared to the same season in the previous year, with a slightly higher decline of 40–48% in the border provinces (Kanta-Häme, Kymenlaakso, North and South Karelia and Lapland).

Estimation results

Table 3 shows the results of the dynamic panel data model estimated by both the mean and PMG estimator for the period January 1999 to July 2015.[4] Panels A and B list the results for 16 Finnish provinces, while the third panel below shows the results based on the city-level data (panel C). All models include the yearly time trend and monthly dummy variables. The number of lags for the short-run coefficients is restricted to three. The maximum likelihood pseudo R^2 shows that the

Table 2. Descriptive statistics (1999:1 to 2015:7) at the city level (all accommodations).

City	Region	Russian overnight stays			Share of Russian overnight stays in for-eign stays %	Russian overnight stays		
		1999	2013	Change in percentage		2013:8 to 2014:7	2014:8 to 2015:7	Change in percentage
Espoo	Uusimaa	20,562	46,483	6.0	28	44,719	25,277	−43.5
Helsinki	Uusimaa	127,578	310,243	6.6	19	28,0354	177,607	−36.6
Vantaa	Uusimaa	7834	43,042	12.9	14	41,027	26,497	−35.4
Lohja	Uusimaa	267	4447	22.3	30	5647	3539	−37.3
Porvoo	Uusimaa	2394	12,626	12.6	43	10,674	6785	−36.4
Salo	Varsinais-Suomi	380	1389	9.7	10	1334	1167	−12.5
Turku	Varsinais-Suomi	5414	22,017	10.5	15	20,037	12,514	−37.5
Pori	Satakunta	1083	2061	4.7	8	1939	1579	−18.6
Hämeenlinna	Kanta-Häme	1310	5237	10.4	18	4692	2457	−47.6
Tampere	Pirkanmaa	11,041	18,564	3.8	11	16,564	11,646	−29.7
Heinola	Päijät-Häme	1321	4707	9.5	52	5486	4406	−19.7
Lahti	Päijät-Häme	12,599	16,537	2.0	36	15,647	8409	−46.3
Kotka	Kymenlaakso	4886	34,037	14.9	48	29,173	15,745	−46.0
Kouvola	Kymenlaakso	4418	23,495	12.7	69	22,298	11,605	−48.0
Imatra	South Karelia	6225	156,592	25.9	95	13,6363	76,239	−44.1
Lappeenranta	South Karelia	11,358	158,724	20.7	86	14,6904	85,327	−41.9
Mikkeli	Etelä-Savo	6706	44,618	14.5	72	41,049	27,010	−34.2
Savonlinna	Etelä-Savo	8203	63,929	15.8	75	62,081	43,596	−29.8
Iisalmi	Pohjois-Savo	244	984	10.5	15	804	805	0.1
Joensuu	Pohjois-Savo	4594	27,325	13.6	57	26,349	13,187	−50.0
Kuopio	Pohjois-Savo	14316	39,749	7.6	43	37,202	23,485	−36.9
Lieksa	North Karelia	2281	7825	9.2	68	9296	6215	−33.1
Jyväskylä	Central Finland	7065	12,253	4.0	17	10,469	7217	−31.1
Jämsä	Central Finland	8377	23,107	7.5	29	20,406	13,226	−35.2
Seinäjoki	South Ostrobothnia	449	845	4.6	8	1052	485	−53.9
Vaasa	Ostrobothnia	1446	2459	3.9	5	2388	1971	−17.5
Oulu	North Ostrobothnia	3034	19,518	14.2	18	18,039	10,721	−40.6
Kokkola	Central Ostrobothnia	255	1410	13.0	7	1498	790	−47.3

(continued)

Table 2. (continued)

City	Region	Russian overnight stays				Russian overnight stays		
		1999	2013	Change in percentage	Share of Russian overnight stays in for-eign stays %	2013:8 to 2014:7	2014:8 to 2015:7	Change in percentage
Kajaani	Kainuu	2326	3551	3.1	38	3413	2165	−36.6
Sotkamo	Kainuu	18318	47,830	7.1	61	45,950	31,670	−31.1
Inari (Saariselkä)	Lapland	5607	15,506	7.5	12	15,103	10,585	−29.9
Kemi	Lapland	175	3728	24.4	18	2995	1311	−56.2
Kittilä (Levi)	Lapland	3513	28,890	16.2	12	25,541	16,915	−33.8
Kuusamo	Lapland	2458	59,815	25.6	51	67,026	51,577	−23.0
Rovaniemi	Lapland	9036	65,244	15.2	26	54,737	29,197	−46.7
Sodankylä	Lapland	678	2767	10.6	4	2430	2288	−5.8
Tornio	Lapland	292	1513	12.5	20	1295	691	−46.6

Note: The average annual growth rate of overnight stays is calculated as the annual geometric growth rate.
Source: Statistics Finland. Own calculations.

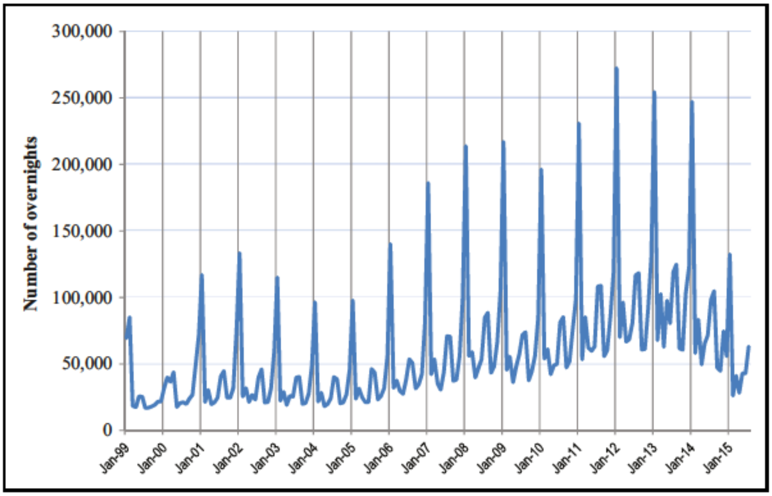

Figure 2. Evolution of Russian overnight stays in hotels.
Source: Statistics Finland.

model accounts for 64% of the variation in the number of nights Russian tourists spent in Finnish hotels. The long-run coefficients for exchange rate and retail trade volume index can be directly interpreted as long-run elasticities.

The results show that the number of nights Russian tourists spend in hotels depends significantly and negatively on the exchange rate and significantly and positively on the demand variable (measured as the retail sales volume). Based on regional data and the PMG estimator, the long-run exchange rate elasticity is −1.58 – quite high in absolute terms (Table 3, panel B). This indicates that a 10% depreciation of the rouble against the euro will lead to a 16% decline in Russian overnight stays. The exchange rate elasticity is also robust to the definition of overnight stays. Estimates for overnight stays in all types of accommodation lead to similar results (see panel A in Table 3).

The interaction term between the time dummy variable for the period August 2014 to July 2015 is significant, implying that the sensitivity of Russian tourism demand to shifts in the exchange rate increased after the EU's economic sanctions was introduced. However, the coefficient of the interaction term between the exchange rate and the dummy variable from August 2014 onwards is relatively small (but statistically significant) at around −0.04, which indicates that the sensitivity of tourism demand to exchange rate changes has not changed much since the rouble's value began to decline and sanctions were imposed in August 2014.

Interestingly, the results at the city level confirm the strong impact of exchange rates on Russian tourism demand in Finnish regions. Here, the exchange rate elasticity is also 1.6 and significant at the 1% level. The time trend is positive and significant, indicating that Russian overnight stays increased over time. On average, the number of Russian overnight stays increased by 5.4% per year across the regions, given the effects of exchange rates and real income. The coefficients of the monthly dummy variables indicate that Russian tourism demand is highest in January, followed by July, December, and August (see panel A).

The exchange rate elasticity exhibited by Russian tourists is relatively high when compared to the related literature. For Swiss communities, Stettler (2016) finds similarly large exchange rate

Table 3. Determinants of the change in Russian overnight stays at the regional and city level.

	Panel A. Total overnight stays at the regional level			
	Mean group estimator		Pooled mean group estimator	
	Coeff.	z	Coeff.	z
ln rouble per euro	−1.625***	−9.17	−1.668***	−10.20
ln rouble per euro × D14AUG	−0.039**	−2.21	−0.046**	−2.51
ln retail trade volume	0.771***	2.64	0.605***	8.46
Year	0.065*	1.94	0.070***	274.86
Error-correction coefficient	−0.683***	−24.21	−0.490***	−13.24
Constant	−153.78***	−2.79	−68.49***	−8.59
January	1.34***	6.40	1.14***	5.78
February	−0.25**	−2.12	−0.63***	−3.56
March	0.31**	2.23	0.28*	1.92
April	−0.25**	−1.96	−0.35**	−2.17
May	0.00	0.00	0.03	0.18
June	0.29**	2.39	0.28*	1.89
July	0.94***	6.36	0.85***	5.47
August	0.79***	6.04	0.54***	3.35
September	−0.19*	−1.82	−0.43***	−2.99
October	−0.10	−0.89	−0.13	−1.01
November	0.19*	1.72	0.18	1.34
December	0.78***	3.95	0.71***	3.46
No. of observations	2938		2938	
No. of regions	16		16	
	Panel B. Hotel overnight stays at the regional level			
	Mean group estimator		PMG estimator	
	Coeff.	z	Coeff.	z
ln rouble per euro	−1.632***	−8.91	−1.623***	−10.67
ln rouble per euro × D14AUG	−0.048***	−2.95	−0.028	−1.66
ln retail trade volume	0.821***	2.59	0.738***	4.81
Year	0.058	1.62	0.032**	2.20
Error-correction coefficient	−0.760***	−23.45	−0.507***	−7.86
Constant	−87.195	−1.61	−28.480***	−7.67
Monthly dummy variables	Yes		Yes	
Number of observations	2938		2938	
Number of regions	16		16	
	Panel C. Total stays at the city level			
	Mean group estimator		PMG estimator	
	Coeff.	z	Coeff.	z
ln rouble per euro	−1.685***	−10.54	−1.600***	−13.84
ln rouble per euro × D14AUG	−0.061***	−4.40	−0.060***	−4.62

(continued)

Table 3. (continued)

	Panel C. Total stays at the city level			
	Mean group estimator		PMG estimator	
	Coeff.	z	Coeff.	z
ln retail trade volume	0.197	0.68	0.626***	5.35
Year	0.151***	4.85	0.089***	7.90
Error-correction Coefficient	−0.795***	−30.14	−0.595***	−15.89
Constant	−281.61	−6.82	−112.26	−17.34
Monthly dummy variables	Yes		Yes	
No. of observations	6887		6887	
No. of cities	37		37	

Note: Long-run coefficients can be directly interpreted as long-run elasticities. All regressions include monthly dummy variables and up to three lags for the retail trade volume and the exchange rate that are included in the short-run relationship. Unreported results reveal that serial correlation and heteroskedasticity are not present in the residuals.*Denote significance at the 10% significance level.
**Denote significance at the 5% significance level.
***Denote significance at the 1% significance level.

elasticities for German, Dutch and Belgian visitors. Based on a meta-analysis, Peng et al. (2015) find a price elasticity of 1.3 for European destinations.

Separate estimation results obtained from the mean group estimator for the 16 provinces in question show that there is a significant amount of heterogeneity in exchange rate elasticity across the regions.[5] The highest exchange rate elasticity can be observed for the border provinces of Kainuu, Kymenlaakso, Lapland and North Karelia, where it ranges between −2 and −2.8; the same statistic is lowest in central Finland and Pirkanmaa and insignificant in North and South Ostrobothnia. One possible explanation is that the latter regions attract more business travellers who are typically less price sensitive than leisure travellers. For the sample including cities, we again find the highest exchange rate elasticities for Finnish cities located quite close to the Russian border (Heinola, Joensuu, Inari, Mikkeli and Lieksa). This is most likely related to the differences in visitors' reasons for travelling. Journeys to these border cities are often secondary trips undertaken in the low season rather than to locations mainly known as holiday destinations.

Conclusion

This article has investigated the sensitivity of Russian tourism demand in Finland to the exchange rate between the two countries' currencies. The data are based on overnight hotel stays in 16 Finnish regions or 37 cities at the monthly level for the period January 1999 to July 2015. Using dynamic tourism demand models, we find that the elasticity of Russian visitors' overnight hotel stays with respect to the rouble-to-euro exchange rate is significantly greater than unity (approximately 1.6) in absolute terms. The sensitivity of Russian tourism to exchange rate changes is highest in neighbouring provinces or cities close to the border. Given the high-price elasticity of Russian tourism demand, hotels in Finland are forced to reduce their prices in order to stay competitive with their counterparts in Russia. Attractive packages, price reductions and other forms of group discounts will make Finnish destinations more appealing to Russians.

Acknowledgements

We would like to thank an anonymous referee for helpful suggestions.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Notes

1. The share of Russian arrivals in total international arrivals in 2013 was highest in Finland (47%), followed by Egypt (25%), Israel and Turkey (11% each), Greece (8%) and Bulgaria and Lithuania (7% each; source: Organization for Economic Cooperation and Development (OECD) STATS (http://stats.oecd.org/), authors' own calculations). Here, inbound tourism is measured as international arrivals – unlike in the present study, in which data are based on overnight stays.
2. http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/StatFin__lii__matk/? tablelist=true.
3. http://visitfinland.stat.fi/PXWeb/pxweb/fi/VisitFinland.
4. The dynamic panel data model is estimated using the XTPMG command (Blackburne and Frank, 2007). A unit root test shows that all variables are integrated to order one. A panel cointegration test based on the significance of the error correction term developed by Westerlund (2007) shows that the null hypothesis of no cointegration can be rejected at the 1% level in all cases. Therefore, the standard error correction model and the PMG model can be applied. In addition, the Breusch-Pagan test for heteroskedasticity fails to reject the null hypothesis of homoskedasticity at the 1% significance level.
5. Results are available upon request.

References

Blackburne EF and Frank MW (2007) Estimation of nonstationary heterogeneous panels. *Stata Journal* 7(2): 197–208.

Chi J (2015) Dynamic impacts of income and the exchange rate on US tourism, 1960–2011. *Tourism Economics* 21(5): 1047–1060.

Cortés-Jiménez I and Blake A (2011) Tourism demand modeling by purpose of visit and nationality. *Journal of Travel Research* 50(4): 408–416.

Furmanov K, Balaeva O and Predvoditeleva M (2012) Tourism flows from the Russian federation to the European Union. *Anatolia - An International Journal of Tourism and Hospitality Research* 23(1): 17–31.

Jakosuo K (2011) Russia and the Russian tourist in finnish tourism strategies - the case of the Karelian region. *Procedia Social and Behavioral Sciences* 24: 1003–1013.

Lipkina O (2013) Motives for Russian second home ownership in Finland. *Scandinavian Journal of Hospitality and Tourism* 13(4): 299–316.

Meurer R (2010) International travel: the relationship between exchange rate, world GDP, revenues and the number of travellers to Brazil. *Tourism Economics* 16(4): 1065–1072.

Ollus S-E and Simola H (2006) Russia in the finnish economy. Sitra reports 66. Available at: https://www.sitra.fi/julkaisut/raportti66.pdf (accessed 7 October 2015).

Peng B, Song H, Crouch GI, et al. (2015) A meta-analysis of international tourism demand elasticities. *Journal of Travel Research* 54(5): 611–633.
Pesaran MH, Shin Y and Smith RJ (1999) Pooled mean group estimation of dynamic heterogeneous panels. *Journal of the American Statistical Association* 94(446): 621–634.
Pesaran MH and Smith RJ (1995) Estimating long-run relationships from dynamic heterogeneous panels. *Journal of Econometrics* 68(1): 79–113.
Pitkänen K (2011) Contested cottage landscapes: host perspective to the increase of foreign second home ownership in Finland 1990–2008. *Fennia* 189(1): 43–59.
Song H and Li G (2008) Tourism demand modelling and forecasting - a review of recent research. *Tourism Management* 29(2): 203–220.
Stettler C (2016) How do overnight stays react to exchange rate changes? *Swiss Journal of Economics and Statistics*, forthcoming.
Tang J, Sriboonchitta S, Ramos V, et al. (2014) Modelling dependence between tourism demand and exchange rate using the copula-based GARCH model. *Current Issues in Tourism*, Article in Press.
Tilastokeskus (2015) Regions in Finland year 2015. Available at: http://www.stat.fi/meta/luokitukset/maakunta/001-2015/index_en.html (accessed 16 October 2015).
Toivonen T (2002) Regional development of Finnish tourism at the end of the 1990s: some considerations. *Tourism and Hospitality Research* 3(4): 331–342.
Westerlund J (2007) Testing for error correction in panel data. *Oxford Bulletin of Economics and Statistics* 69(6): 709–748.